IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	10/684,762	Confirmation No.: 3344
Applicants	:	Larry J. Ashton et al.	
Title	:	RESIN IMPREGNATED MULTI-ORIENTATION COMPOSITE MATERIAL	
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MAIL STOP AMENDMENT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Dear Sir:

Transmitted herewith is an Information Disclosure Statement disclosing information which has come to the attention of applicants and/or their attorneys and is being submitted so as to comply with the duty of disclosure set forth in 37 C.F.R. § 1.56. In accordance with 37 C.F.R. § 1.97(c), the enclosed Statement is being filed before the mailing date of either a final action or a notice of allowance.

Neither applicants nor their attorneys make any representation that any information disclosed herein may be "prior art" within the meaning of that term under 35 U.S.C. § 102 or § 103. Moreover, pursuant to 37 C.F.R. § 1.97, the filing of this Information Disclosure Statement shall not be construed as a representation that a search has been made or as an admission that the information cited herein is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

In accordance with 37 C.F.R. § 1.98, transmitted herewith are:

1. A completed copy of Form PTO/SB/08a "Information Disclosure Statement by Applicant" listing the patents, publications and other information being submitted for consideration; and

2. A legible copy of each patent, publication and other item of information in written form listed on the enclosed Form PTO/SB/08a, except for copies of U.S. patents and published U.S. patent applications which are not required for applications filed after June 30, 2003.

NON ENGLISH INFORMATION

1. Japanese Patent Application No. JP 2003-221771, published August 8, 2003 discloses: PROBLEM TO BE SOLVED: To provide a fiber-reinforced sheet which is reinforced biaxially so as to be symmetric with respect to the longitudinal direction of the sheet. SOLUTION: This fiber-reinforced sheet 1 is produced by the following process: a fibrous sheet 3 made by uniaxially arranging a fiber bundle 2 in parallel is wrapped by sequentially turning back so as to be mutually superimposed at an angle of inclination of [theta][deg.] along a pair of turnback guides 12 to obtain the objective sheet 1 composed of a 1st fibrous sheet layer 4 with an angle of +[theta][deg.] and a 2nd fibrous sheet layer 5 with an angle of -[theta][deg.] with the longitudinal direction of the final sheet 1.

2. Japanese Patent Application No. JP 2002-059488, published February 26, 2002 discloses: PROBLEM TO BE SOLVED: To provide a long-sized FRP molding having reinforcing fibers straightly arranged in a lengthwise direction and excellent mechanical characteristics and a method for molding the same. SOLUTION: The FRP molding comprises sheet-like base materials each made by laterally alternatively arranging reinforcing fiber filaments each made of continuous fibers of at least 30 m and glass filaments each made of continuous fibers of at least 30 mm and integrated to constitute a laminate. The method for forming the molding comprises the steps of impregnating such a laminate with a resin in a liquid form at ambient temperatures and then curing the impregnated laminate.

3. Japanese Patent Application No. JP 2000-108213, published April 18, 2000 discloses: PROBLEM TO BE SOLVED: To provide a method for manufacturing a fiber-reinforced plastic(FRP) pipe capable of being manufactured out of an FRP pipe having high Vf. SOLUTION: In the case of manufacturing an FRP pipe by a filament winding method, a laminated fiber layer 25 is formed in the state of including a fiber layer wound on a mandrel 7 so that fiber bundles impregnated with resin are set at 45 deg. or less to an axial direction of the

mandrel 7. Then, a plurality of fiber layers obtained by sequentially winding polyester yarns 23 from an end of the mandrel 7 in the state near 90 deg. are formed. The yarns 23 are set so that its tension increases more at the later time of winding and wound. The yarns 23 are sequentially wound to squeeze out excess resin of the resin impregnated into the bundles. The tension of the yarns 23 at the time of sequentially winding by dividing into a plurality of times is enhanced, and then the resin is gradually squeezed out, and the yarns 23 are smoothly wound.

4. Japanese Patent Application No. JP 09-267401, published October 14, 1997 discloses: PROBLEM TO BE SOLVED: To improve the workability in a manufacturing process and to achieve higher physical properties by forming an FRP pipe by winding up flat yarn consisting of reinforcing fiber multifilament yarns having specific yarn width and a yarn width/yarn thickness ratio of a specific value or more. SOLUTION: Flat yarn 3 consisting of reinforcing fiber multifilament yarns is helically wound around the flexible tube core material 2 applied to a mandrel 1 at an angle of ± 30 deg. with respect to the axial direction of the mandrel by a filament winding method (winding layer 4). Next, a helical winding layer 5 is provided at a winding angle of ± 10 deg. and a helical winding layer 6 is further provided at a winding angle of 30 deg. to form a preform 7 consisting of a plurality of fat yarn winding layers. This flat yarn has yarn width of 4-30mm and a yarn width/yarn thickness ratio of 10 or more. When yarn width is below 4mm, flattening effect is reduced and, when yarn width exceeds 30mm, handling is difficult and, when the yarn width/yarn thickness ratio is below 10, it is difficult to suppress crimps small. Yarn width is about 4-16mm from an aspect of easiness to handle.

5. Japanese Patent Application No. JP 08-039686, published February 13, 1996 discloses: PURPOSE: To obtain a laminated sheet high in thickness accuracy by introducing a curable resin sufficient to fill all of gaps within the vol. of a desired composite into the filament structure in a vacuum chamber and holding the filament structure between a pair of opposed surfaces at a predetermined interval during the curing of the resin. CONSTITUTION: A mandrel 20 is perfectly immersed in a resin soln. 244 along with the spiral winding wound around the mandrel and, when the mandrel becomes a vacuum state by a pump 26, a semi-finished product is perfectly impregnated with a resin. A rod 266 is drawn up to take the mandrel 20 out of the resin soln. 244 and the excessive resin soln. is removed while a part of the remaining resin soln. is kept around the winding by its thixotropy. Piston- cylinder combination members 278, 280 are moved and the outer plates 270, 272 of a mold member are brought into contact with the stopper on the mandrel 20. The stopper determines the accurate thickness of a completed laminated sheet. In this state, the winding on the mandrel is heated.

6. Japanese Patent Application No. JP 07-223271, published August 22, 1995 discloses: PURPOSE: To produce an FRP bent pipe or racket having excellent characteristics and stable quality without producing a void, a pinhole and a resin flow defective part on the surface thereof. CONSTITUTION:A fiber reinforced plastic bent pipe or racket to be produced has an inner reinforcing fiber layer 4 and an outer nonwoven fabric layer 5 composed of a reinforcing layer with a monofilament diameter of 20mum or less and a basis wt. of 100-g/m<2> or less.

7. Japanese Patent Application No. JP 05-104571, published April 27, 1993 discloses: PURPOSE: To control the mixing ratio of fibers of a different kind arbitrarily while

imparting a uniform function to overall wall thickness extending over an external layer from an internal layer by impregnating a fiber preform with a resin through reaction injection molding. CONSTITUTION:A fiber preform formed by winding fibers 11, 12 in the types of two kinds or more of a roving, a tape, yarn, a monofilament, cloth or the like on a core 16 through a filament winding method is set into the cavity of a mold. The fiber preform is impregnated with RIM nylon or cyclopentadiene through reaction projection molding, thus acquiring a molded form 10 having a required shape. The filament winding of a plurality of kinds of the fibers 11, 12 may be conducted in such a manner that the fibers 11, 12 are forwarded simultaneously from the rovings 17, 18 of a plurality of fibers, fed twisted through one eye 20 and wound on the core 16.

8. Japanese Patent Application No. JP 03-243333, published October 30, 1991 discloses: PURPOSE: To fuse an internal layer pipe and a fiber composite body excellently by using a chlorinated vinyl chloride resin having chlorine content lower than that forming the internal layer pipe as a thermoplastic resin constituting the fiber composite body. CONSTITUTION:A chlorinated vinyl chloride resin to which a heat stabilizer and a lubricant additional matter are added is melted and kneaded by an extruder 1, and an internal layer pipe 3 is extrusion-molded by a mold 2. A fiber composite body 4 is wound out on the outer circumference of the internal layer pipe 3 from a first winder 5, hot air is injected by a hot air type heating apparatus 6, and a chlorinated vinyl chloride resin in the fiber composite body 4 is heated and melted, and fused with the internal layer pipe 3, thus forming a first layer reinforcing layer. A second layer reinforcing layer is wound in the opposite direction to the first layer by a second winder 5, thus similarly molding a tubular body 11. The chlorine content of the chlorinated vinyl chloride resin in the fiber composite body 4 is made lower than that of the chlorinated vinyl chloride resin of the internal layer pipe 3, and the chlorinated vinyl chloride resin in the fiber composite body 4 is melted even at a temperature lower than the melting point of the internal layer pipe 3, thus fusing the fiber composite body 4 and the internal layer pipe 3.

CERTIFICATION UNDER 37 C.F.R. § 1.97(e)

I hereby certify that each item of information listed on the enclosed Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.

Respectfully submitted,

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